

02/22/00
JC564 U.S. PTO
02/22/00

PTO/SB/13/PCT (12-97)

Approved for use through 9/30/00. OMB 0651-0032

Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

REQUEST FOR FILING A CONTINUATION OR DIVISION OF AN INTERNATIONAL APPLICATION

DOCKET NUMBER	ANTICIPATED CLASSIFICATION OF THIS APPLICATION		PRIOR APPLICATION EXAMINER	ART UNIT
	CLASS	SUBCLASS		

Address to:
Assistant Commissioner for Patents
Washington, D.C. 20231

02/22/00
JC564 U.S. PTO
02/22/00

This is a request for filing a continuation divisional application under 37 CFR 1.53(b), of pending prior international application Number PCT/FR99/01502 filed on 06/23/99 entitled AEROSTAT FOR TRANSPORTING EQUIPMENT AND PASSENGERS, which designated the United States.

Note: 37 CFR 1.53(c) or (d) cannot be used to file a continuation or divisional application of an international application which has not entered the national stage.

CLAIMS	(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) CALCULATIONS
	TOTAL CLAIMS (37 CFR 1.16(c))	<u>14</u>	- 20 =	x \$ _____	= \$ _____
	INDEPENDENT CLAIMS (37 CFR 1.16(b))	<u>14</u>	- 3 =	x \$ _____	=
	MULTIPLE DEPENDENT CLAIMS (if applicable) (37 CFR 1.16(d))			+ \$ _____	=
				BASIC FEE (37 CFR 1.16(e))	+ _____
				Total of above Calculations =	
				Reduction by 50% for filing by small entity (Note 37 CFR 1.9, 1.27, 1.28).	
				TOTAL =	

1. Enclosed are the specification, claims and drawing(s).
2. A statement to establish small entity status under 37 CFR 1.9 and 1.27 is enclosed
3. The Commissioner is hereby authorized to charge any fees which may be required under 37 CFR 1.16 and 1.17, or credit any overpayment to Deposit Account No. _____ . A duplicate copy of this sheet is enclosed
4. A check in the amount of \$ _____ is enclosed.

5. Amend the specification by inserting before the first line the sentence: "This application is a continuation division of international application number PCT F199/01502 filed 06/23/99 *status ok in priority date*" (status, abandoned, pending, etc.)."

[Page 1 of 2]

Burden Hour Statement: This form is estimated to take 0.5 hours to complete. Time will vary depending upon the needs of individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

(REQUEST FOR FILING A CONTINUATION OR DIVISION OF AN INTERNATIONAL APPLICATION, PAGE 2)

6. A declaration under 37 CFR 1.63 is enclosed.
98/07922
7. Priority of foreign application number 199707299, filed on 06/23/98 in FRANCE
is claimed under 35 U.S.C. 119(a) - (d).

The certified copy is enclosed.

8. A preliminary amendment is enclosed.

9. Also enclosed: *Abstract included with translation (12 pages)
(1 page)*

Address all future correspondence to: (May only be completed by applicant, or attorney or agent of record ;

Feb 17/2000

Date



John S. Schreiber

Signature

YVES BARBARIE

Typed or printed name

Inventor(s)
 Assignee of complete interest. Certification under 37 CFR 3.73(b) is enclosed
 Attorney or agent of record
 Filed under 37 CFR 1.34(a)

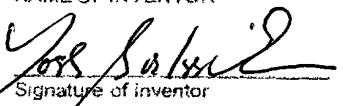
Registration number if acting under 37 CFR 1.34(a) _____

PTO/SB/09 (12-97)

Approved for use through 9/30/00. OMB 0651-0031

Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT CLAIMING SMALL ENTITY STATUS (37 CFR 1.9(f) & 1.27(b))—INDEPENDENT INVENTOR	Docket Number (Optional)	
Applicant, Patentee, or Identifier: <u>BARBARIE YVES</u>		
Application or Patent No.: <u>PCT/FR99/01502</u>	<u>June 23, 1999</u>	
Filed or Issued:		
Title: <u>AEROSTAT FOR TRANSPORTING EQUIPMENT AND PASSENGERS</u>		
As a below named inventor, I hereby state that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office described in:		
<input checked="" type="checkbox"/> the specification filed herewith with title as listed above <input type="checkbox"/> the application identified above. <input type="checkbox"/> the patent identified above.		
I have not assigned, granted, conveyed, or licensed, and am under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).		
Each person, concern, or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:		
<input checked="" type="checkbox"/> No such person, concern, or organization exists. <input type="checkbox"/> Each such person, concern, or organization is listed below.		
Separate statements are to be filed from each named person, concern, or organization having rights to the invention, stating their status as small entities. (37 CFR 1.27)		
I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))		
<u>BARBARIE Yves</u> NAME OF INVENTOR  Signature of inventor	<u> </u> NAME OF INVENTOR <u> </u> Signature of inventor	<u> </u> NAME OF INVENTOR <u> </u> Signature of inventor
<u>Feb 17, 2000</u> Date	<u> </u> Date	<u> </u> Date

AEROSTAT FOR TRANSPORTING EQUIPMENT AND PASSENGERS

FIELD OF INVENTION

5 This invention is of the aeronautic category and more particularly of the lighter-than-air craft for commercial and leisure transport.

BACKGROUND OF INVENTION AND BRIEF DESCRIPTION OF PRIOR ART

10 The types of air crafts which presently exist and use not wings for lift but the neutralization of masses to fly, experience notorious disadvantages.

15 The air balloon besides its need of a gigantic envelope to retain the volumes of heated air, offer very little security for the passengers. To the fragility of the equipment and the complexity of the preparation preliminaries previous to the flight, are added the instability and precariousness of the basket at the mercy of winds on becoming airborne as well as on landing. Moreover, the gas burners, represent a constant danger and especially on emergency landing.

20 The zeppelin even though offering minimal controls on unwindy days due to the presence of propellants, besides being very vulnerable in the air due to its surface exposed to the slightest breeze, features a titanic size which makes it an airship requiring very large spaces on the ground. At bay, it has the additional inconvenient of being
25 constantly held by cables and retained on the landing sight during embarking procedures by an inverted push of its propulsion motors its mass having been reduced in function of its total capacity of levitation.

30 The types of crafts described above offer little security, are cumbersome by their hypersized dimensions, have very restrictive maneuverability, and require elaborated flight preparations often done in inadapted conditions. Finally, their comfort is questionable, and their passenger compartment elementary if not vulnerable.

35 These crafts also carry high fuel bills linked to the type of petrol and motor propulsion used.

The principal object of the present invention, from the different characteristics that make it particular, is to reduce if not eliminate these inconveniences.

40 BRIEF DESCRIPTION OF THE PRESENT INVENTION

The craft which is the invention concerns a metal structure of a light and solid alloy that produces a framework (1) - fig. 2 and 4 - built on the vertical and of a size many

times reduced if compared to the dimension of the actual lighter-than-air crafts. This framework encloses all the components of the invention of which the passengers and pilot compartment (4) - fig. 4 and 5 - the securized platform (27) and bullet proof windows (28) - fig. 5 -, hermetically sealed and solidly fitted to the base of the framework; a mass reduction system , comprising compressor (8) - fig. 6 -, interior balloons (2) - fig. 6 -, exterior balloons - fig. 5 - (11) and a tank for lightly pressurized gas like helium (9) - fig. 6 and 10b- to neutralize completely or in part the total weight of the craft; a stabilizer (10) - fig. 2, 10b and 12 - activated on request to eliminate uncomfortable rolls and sways; a multidirectionnal propulsion system (6-7) (18-17) - fig. 7 - powered by electricity; to lift and move the craft once the mass is neutralized; a mini-power station for generating electricity (5) consisting of a small gas engine (30), and a series of generators composed of alternators, coils and transformers (31) - fig. 7, 9 and10b - to produce and provide the energy required to work the electric motors turning propellers (6-7); manual and automatic pilot instruments installed in the cabin (4) -fig. 4 and 5 - for controlling the craft in the air.

In flight, the craft which is the invention is quiet, uses little fuel, takes off, lands and moves using screw propellents (6-7) fixed to the framework (1) - fig. 2 and 4 - and which the pilot can control individually from buttons and levers on a control panel in the cabin (4) - fig. 4 and 5 -. the craft can by thrust of its lateral propellents (6) - fig. 7 - face medium winds, move with medium winds and land in relatively confined spaces. The framework (1) - fig. 2 and 4 - behind which are found installed as a whole the components of our invention is protected from shocks and damages by a thick envelope made of balloons molded to the exterior profile of the framework and filled with a lighter-than-air gas such as helium (11) - fig. 5 and 10a -covered with a light resistant fabric (12) - fig. 10a - embodying the balloons - fig. 5 and 10a - protecting them from small projectiles. This double envelope (11 and 12) - fig. 5 and 10a, by the flat surface it exposes in the air depending on wind direction acts as sails in the manner of sailboats but which in this instance, the pilot exploits in conjunction with the calculated thrust of the propellents (6-7) - fig. 7 - to maneuver the craft towards its destination.

In the case of a fast lost of altitude, a parachute (14) - fig. 10a - located on top of the craft, helps, in conjunction with the propellents (6-7) -fig. 7)-, to master the course of the craft to insure a safe landing.

According to production particulars:

- 1) The framework can be supported on the ground by levelling pegs or stand on directional suspension wheels (20). Retractable air balloons (15) - fig. 5 - can be placed under the craft to allow landing on water.
- 2) The framework can be built of metal sheetings and/or with L or T or tubular beams

made of light metal alloy set on a geometrical layout and vertical and transversal complementary beams and cross-over shanks (33) - fig. 4 - can be added to give lightness, rigidity and form to the structure.

- 5 3) Male or female type structural connecting corners (32) - fig. 2, 9 and 12 - can become components substitutes to a monocoque type structure with multiples welding points to facilitate assembly and repair of the structure as a whole.
- 10 4) The craft can take a spherical, conical, cubical shape, etc. in accordance with constraints imposed by the gas volumes required to lift the craft.
- 15 5) The framework of our invention (1) - fig. 2 and 4 - of an extended cubical shape erected vertically allows a much reduced ground surface contact. Viewed from above, the extremities can form a square (1) - fig. 10a - or a diamond pattern (1) - fig. 10c - or any other type of polygonal pattern. The framework can, by its configuration, display at the rear a round shape (1) - fig. 10d -, the large surface so exposed allowing it, when partly-opened, to become a sail for fair winds like a spinnaker on sailboats.
- 20 6) The protective envelope (12) - fig. 5 and 10a - can shield separately or be part of the molded balloons (11) - fig. 5 and 10a - fitted on the exterior of the framework.
- 25 7) The «weight reduction» system manually or automatically controlled can consist of many gas-receptor balloons, and several compressors for lighter-than-air gas such as helium (8) - fig. 10b -, all used to neutralize rapidly the combined mass of the craft which is the invention, the material placed on board and the passengers.
- 30 8) The balloons positioned inside and outside the framework can be attached to the framework to be lifted by cablings such as the type used on air balloons or by hooks integrated into the structure of the balloons.
- 35 9) The small gas engine which is the initial power source of the mini electric power station can be of another type of energy source and activate all suitable types of generators, coils and transformes. The power station can be complemented or replaced by a solar energy system which photoelectric cells could cover the exposed surface of the craft.

BRIEF DESCRIPTION OF THE DRAWINGS

- 40 Figure 1 is a perspective view showing an embodiment of the present invention.

Figure 2 is a perspective view showing the framework of the present invention and its structural components.

2022-08-22 10:56:01

Figure 3 is a front view of the craft shown in fig. 1.

Figure 4 is a front view of the framework of the present invention.

5

Figure 5 is a front view of the molded exterior balloons of the present invention.

Figure 6 represents the weight reduction system which comprises the interior balloons, the cabling (and the hooks fixed to the horizontal cross- overs), the tank containing low pressurized gas such as helium and the compressor linked to the different components of the system by umbilical tubes.

10

Figure 7 is a front view of the propulsion system comprising the horizontal tubular passages inside which are placed the lateral thrust motors, the vertical tubular passages inside which are placed the vertical thrust motors and the mini electric power station.

15

Figure 8 represents the structural connecting corner, viewed from above, viewed from the side and viewed in perspective.

20

Figure 9 represents viewed from above, the propulsion system , the mini electric power station, and, the compressor and its umbilical extensions .

25

Figure 10 represents the present invention viewed from above with, in contrast, the molded exterior balloons and the emergency parachute in the center (a); the present invention viewed from above with, in contrast, , the framework configurations, the positioning of the horizontal tubular passages and the emplacement of the stabilizer, the electric power station and the compressor (10 b), the present invention which structure seen from above, takes the form of a diamond (10 c) and the present invention which structure seen from above, takes the form of a diamond and so, on the fore part and of a half circle on the back part (10 d).

30

Figure 11 represents, in overdimension, the composition of the framework of the present invention seen from above and illustrates the function of the connecting corner units in the building of the general structure.

35

Figure 12 represents, in overdimensioned perspective, the stabilizer placed inside the diagonal cross-sections under the machine compartment and the 4 retaining beams placed in the center of the cabin to reinforce the overall structure of the passenger compartment.

40

202208081004202208081004

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

5 Erected on the vertical, the framework (1) - fig. 2 and 4 - of the craft of an extended cubical shape resembling a tower is made of pylons (25) -fig. 4 - of about 17 meters high of a geometrical architecture reinforced and retained starting from the base, by supporting beams (21) - fig. 4 - , of horizontal cross-overs (22) - fig. 4 and 12 - and of landings made of successive X shaped cross sections (24) - fig. 4 - all united by the structural connecting corners (32) - fig. 2, 9 and 12.

10 The diagonal cross sections (23) - fig. 2, 11 and 12 - arranged at equal distance in the framework (1) - fig. 2 and 4 - apply a transversal resistance and support the platform of the passenger compartment (24a) - fig. 4 - and that of the machine compartment (24b) - fig. 4 -. The horizontal cross-overs (22) - fig. 4 and 12 - strengthen the position of the vertical pylons (25) - fig. 4 - and provide the retaining points for anchors (26) - fig. 6 - of cables and hooks (3) fig. 6 - for the interior and exterior sustentation balloons (5-11) - fig. 6 and 5 -.

15 The male or female structural connection corners (32) - fig. 2, 9 and 12 - link up the horizontal cross-overs (22) - fig. 4 and 2 - , the diagonal cross sections (22) - fig. 2 and 11 - and the vertical pylons (25) - fig. 4 which are solidly screwed and riveted to facilitate assembling, dismantling and repairing of the general structure.

20 The framework (1) - fig. 2 and 4 - which shelters all the components of the invention and protects them from outside obstacles, is covered by a light but thick protective envelope composed of balloons (11) - fig. 5 - permanently inflated with a lighter-than-air gas such as helium and molded to the exterior shape of the framework (1) these being covered totally or in part by a fabric resistant to small projectiles and riping; in exception of the passenger compartment (4) and windows already benefiting a protection.

25 The overall structure stands on a shock absorbing support on wheels (20) - fig. 4 - for ground movement with option of inflatable balloons (15) - fig. 5 - placed behind the wheels emplacement for sea landing.

30 The passenger compartment (4) - fig. 4 and 5 - is built in the base of the framework (1) . Supports made of vertical beams (21) - fig. 4 - hold firm both the floor and the ceiling (24) fig. - 4 - and are positioned at the center of the cabin, fixed at the meeting point of the diagonal cross sections of the inferior and superior platforms of the cabin (4). The inferior part of the lateral walls (27) - fig. 5 - is solidly attached to the inferior horizontal cross-overs and firmly contained from the exterior by supporting beams (34) fig. 5 - fixed to the horizontal inferior and superior cross-over beams surrounding the cabin. The superior lateral wall (28) - fig. 5 - built-in a groove in the superior part of the inferior wall (27) - fig. 5 - of the cabin (4) consists of bullet-proof

see-through panels (28) - fig. 5 - allowing both a clear view to the passengers and a protection against small projectiles. Two openings (29) - fig. 10a - with securing locks situated at the rear of the cabin (4) allow embarkment and evacuation of occupants.

5 The balloons inflated with alighter-than-air gas such as helium and molded (11) - fig. 5 and 10a - to the exterior configuration of the framework (1) - fig. 2 and 4 - contribute to lighten the mass and protect the craft and its load.

10 The cover resistant but light (12) - fig. 5 and 10a - wraps the craft for total protection of the inflated surfaces and of the on-board equipments without covering the cabin space (4) - fig. 4 and 5 - already secured. This cover also serve as a sail to exploit fair and adverse winds.

15 The weight reduction system (2-8-9-11) consists of balloons (1) - fig. 6 - inflatable with lighter-than-air gas such as helium, of a diameter equal to the dimension of the interior walls of the framework and more or less equal to the volume of the unoccupied space of the framework and retained by a system of cables (3) - fig. 6 - hooked to the framework (1) - fig. 2 and 4 - which they allow to lift; and, of balloons which thickness is equal to a meter or more (11) - fig. 5 and 10a - inflated with lighter-than-air gas such as helium and molded according to the exterior configuration of the framework which adds to the variable capacity of gas retention of the interior balloons (2) - fig. 6 - to lighten the overall craft.

20

25 The umbilical tubes (19) - fig. 6 - of the compressor system (8) - fig. 6 and 10b - are fitted to the balloons (2) - fig. 6 - enclosed behind the framework (1) - fig. 2 and 4 - and to the pressurized tank (9) - fig. 6 - set on the machine platform (24b) - fig. 4 - .

30 in accordance to the mass to neutralize, the compressor system through these tubes (8) - fig. 6 and 10b - on request from the manual or automatic pilot control, injects in the interior balloons (2) - fig. 6 - a definite quantity of the gas stored in the pressurized tank (9) - fig. 6 - .

35 By an inverted process, in accordance with the partial mass of the craft to recover , the compressor system (8) - fig. 6 and 10b - using the manual or automatic pilot control, extracts a specific quantity of gas from the interior balloons, (2) - fig. 6 - and recompresses the volume of gas extracted to store it in the lightly pressurized tank (9) - fig. 6 - .

40 The electricity generating system (5) - fig. 7, 9 and 10b - consists of a small liquid fuel engine (30) - fig. 10b - producing the basic source of energy and a gearing system which links the main motor shaft to a secundary shaft which in turn activates a seies of alternators (31) - fig. 10b - linked to one or more modules of coils and trans-

formers that produces the energy required by the propellents 6-7) - fig. 7 - and the other electric accessories of the craft.

5 Coupled electric motors (7) - fig. 7 - with a power rating around 3500 to 4000 t/mn adapted to the conditions of lightness and miniaturization of the craft, drive multiblade propellers about 50 centimeters in diameter. They are fitted inside long tubular passages erected vertically on the craft and of a diameter a few millimeters larger than that of the propeller (17) - fig. 7 and positioned inside and along the total length of the vertical pylons (25) - fig. 4 - of the framework (1), to obtain from the pilot 10 control, a concentrated air thrust directed above or below allowing the craft in doing so to gain or lose altitude.

15 Coupled electric motors (7) - fig. 7 - with a power rating around 3500 to 4000 t/mn adapted to the conditions of lightness and miniaturization of the craft, drive multiblade propellers about 50 centimeters in diameter. They are fitted inside long tubular passages set horizontally on the craft and of a diameter a few millimeters larger than that of the propeller and fitted at the horizontal and more or less equal to the length of a horizontal cross-overs beam (22) - fig. 4 - and positioned along the top and along the bottom level of the frontal surface of the craft to obtain from the pilot control, a 20 concentrated air thrust directed towards the front or the rear , from the left or from the right to move the craft which is the invention backward, forward, to the right or to the left.

25 A gyroscope (10) - fig. 2, 10b and 12 - activated by a variable speed electric motor placed between the ceiling of the passenger compartment (4) - fig. 4 and 5 - and the floor 24b) - fig. 2 and 4 - of the machine compartment and is used to eliminate the rolls and sways of the craft. Depending on the type of flying the pilot chooses to execute to control the craft, the system can be desactivated or reactivated on command. In combination with the propellers, (6-7) - fig. 7 - it is also used to counter winds 30 when the craft, temporarily immobilized, is not held to the ground by other means.

Once the weight of the craft is neutralized by the mass reduction system - fig. 6 -, the manual or automatic pilot starts the propellents (6) positioned vertically on the craft to take off and then the propellents (7) positioned horizontally to set the direction - 35 fig. 7 -. The movement of the craft in the air, on water and on the ground is done by varying the thrust of the motors individually or together.

40 The maneuvers are done similar to a sailboat confronted to adverse and fair winds that is, by zigzagging towards its destination and exposing the sail surface (11) - fig. 5 - in an angle favorable to the bearing of winds. The pilot ajusts the thrust of the horizontal propellents according to winds in presence and the course to hold.

HOW THE INVENTION WORKS

5 At rest, the grounded craft, for safety measures, is held firm by retractable metallic wires fitted on the four corners of the framework and on hooks well anchored on the track, or, is sheltered in a hangar that can have lateral doors to receive and allow the craft to move in and on option, an open roof allowing direct take off and landing in fair weather.

10 10 The port-of-call or the landing location may consist of a system of tall palisades or wind breakers singled out or arranged in a star-shape formation behind which the craft which is the invention can land and take off.

15 15 At rest, the interior balloons connected to the compressor are partially empty. The craft has then, part of its mass restored and can move on the ground without difficulty.

20 20 After favorable outing permission granted, take-off preparations require positive verification of the running conditions of the manual and automatic piloti system and of the quantity of gas required to undertake the prospected flight. The pilot is imperatively required to know the weight of the occupants and /or of the material the craft will have to transport.

25 25 Once these informations are known and considered favorably, the pilot starts the engine of the mini electric power station and activates the compressor. The compressor then injects the lighter-than-air gas such as helium sufficient to neutralize both the weight of the craft and the total weight of the passengers to embark (max. 4-8 according to the individual weight of the passengers).

30 30 The passengers are accepted on board. The task of the weight reduction system almost completed, the vertical motors are started exerting a calculated thrust toward the sky which holds the craft on the ground awaiting the imminent total neutralization of the mass. The pilot then relaxes the motors in the vertical air ducts set in inverted thrust (diagonal selection) and gradually increases the thrust towards the ground of the two other vertically set motors while reducing to zero the inverted thrust of the motors in the first two vertical ducts.

35 35 This maneuver then allows the craft to execute a vertical take off. the horizontal motors are then started and their thrust are used to direct the craft on the desired trajectory. The thrust of the motors placed vertically is reduced once the proper altitude is reached. If the thrust of all motors is reduced to zero, the craft remains suspended in the air carried in the direction of the winds in presence.

40 40

002220 * 00222050

The pilot defines the bearing to hold and after having established the direction of the winds, positions the craft so that the surface of certain walls of the craft can use the winds to its advantage.

5 The thrust of the lateral motors is then calculated to both keep bearings and exploit to the most the angle of oncoming winds.

10 The craft which is the object of our invention then travels through the sky like a sail-boat which without losing its bearings in adverse winds, zigzags to proceeds towards its destination.

15 Once destination is reached, the pilot places the craft face to the wind, increases the thrust of the horizontal motors to immobilize the craft in the air and sets off an upper thrust of the vertical motors to start the landing procedures. A soft landing is executed by gradually reducing the thrust of the vertical motors after being a few meters from the ground while keeping the craft face to the wind and keeping the immobilizing thrust of the horizontal motors which counters the wind resistance.

20 This maneuver is retained until the mass reduction system has restored the partial mass of the craft, the pilot also having to take in consideration the sudden loss of weight which represents the disembarkation of passengers by temporarily increasing the inverted thrust of the vertical motors.

25 Its partial mass restored, if the craft remains on the ground for some time and is not in its port-of-call, it can be secured to the ground against the violence of sudden winds with fittings kept on board to be solidly screwed into the ground.

30

35

40

What is claimed is:

1 - A craft using lighter-than-air gas to transport by air material and passengers, which comprises

5 a framework enclosing in the upper part of its structure, balloons inflated with a lighter-than-air gas and held by cables hooked to the framework which they grip and pull away from the gravitational force;

10 a cabin with bulletproof windows for the pilot and passengers set on the base of the framework ;

15 a mini power station which supplies electricity to the equipments and accessories of the craft;

20 propellents placed inside long tubular passages for concentrated air thrust, used to lift the neutralized mass of the craft and to move it in the air space;

25 a compressor system which injects in the balloons or retrieves from the balloons a calculated quantity of lighter-than-air gas stored in a slightly pressurized tank according to the total mass of the craft to be neutralized or to partially restore;

30 a stabilizer system to eliminate rolls and sways and

20 a protection system consisting of balloons inflated with lighter-than-air gas, molded over the total exterior surface of the framework, and, a cover covering all the framework made of a fabric resistant to tears and small projectiles - excluding the passenger compartment.

25 2 - The lighter-than-air craft of claim 1 wherein the framework of the craft represents a rectangular structure or extended cubical erected vertically which extremities seen from above form a square or a diamond pattern and which front of the craft is formed by the meeting point of two of the sides of the framework and the extension of these sides which allow the exterior envelope covering this surface of the framework both to cut facing winds and expose at proper angle said surfaces as sails to oncoming winds.

35 3 - The lighter-than-air craft of claim 1 wherein the framework of the craft consists of and is mounted around male or female connection corners which receive and link the horizontal cross-overs, the diagonal cross sections and the vertical pylons at each level of the framework to be solidly screwed and riveted together to facilitate mounting, dismantling and repair of the overall structure.

40 4 - The lighter-than-air craft of claim 1 wherein the framework of the craft which encloses all the components of the invention, is protected by

40 a double exterior envelope consisting of molded balloons, inflated with lighter-than-air gas, covering the exterior surface of the framework in exclusion of the cabin and a fabric resistant to tears and small projectiles covering and protecting all the exterior surfaces of the craft -in exclusion of the cabin.

5 - The lighter-than-air craft of claim 1 wherein the exterior envelope covering the exterior molded balloons attached to the framework serves as sail surfaces for the craft to exploit winds.

5 6 - The lighter-than-air craft of claim 1 wherein the mini electric power station has as initial source of energy the drive shaft of a liquid fuel engine geared to a series of alternators which energy production after transformation, supply electricity to the propellents, the compressor system, the stabilizer motor and the other electrically powered accessories of the said craft.

10 7 The lighter-than-air craft of claim 1 wherein the horizontally oriented propellents and the vertically oriented propellents are powerful electric motors turning multiblade propellers placed inside long tubular passages allowing at the exit a concentrated air thrust.

15 8 The lighter-than-air craft of claim 1 wherein the vertically oriented propellents(7) inserted in long tubular passages are placed inside each vertical pylons of the framework their exit being close to the base and the top of the framework; and, the horizontally oriented propellents inserted in long tubular passages are positioned at the top of the framework and above the cabin along the left and right frontal surface of the craft.

20 9 The lighter-than-air craft of claim 1 wherein the stabilizer system is a gyroscope activated by a variable speed electric motor and set on an horizontal plane inside the framework between the machine floor and the ceiling of the cabin to eliminate uncomfortable sways and rolls of the craft and activated or deactivated in relation with the intended pilot maneuvers.

25 10 The lighter-than-air craft of claim 1 wherein the mass reduction system consists of balloons linked by umbilical tubes connected to one or more compressors used to flow decompressed gas from the pressurized tank to the balloons and, to recuperate the gas inside the balloons to be recompressed by the compressor before being stored in the tank ready to be again decompressed and reinjected into the balloons; and, wherein the mass reduction system comprises also molded balloons permanently inflated and fitted to the exterior of the framework and covered by a protective envelope.

30 35 11 The lighter-than-air craft of claim 1 wherein the mass reduction system, by recompressing gas into the tank, partially empty the balloons reduce the levitation capacity of the gas contained in the balloons and restore to the craft part of its mass.

40 12 The lighter-than-air craft of claim 1 wherein the mass reduction system by the decompression of part of the gas kept under pressure in the tank fill totally or partial-

ly the balloons and increase the levitation capacity of the gas already inside the balloons which gradually neutralizes the total mass of the craft and what is on board and gives the vertical propellents the potential to lift the craft and the horizontal propellents to move the craft in the direction intended by the pilot.

5

13 The lighter-than-air craft of claim 1 wherein the balloons held by a system of cables, fitted to hooks on the horizontal cross-overs of the framework on being filled with a calculated quantity of decompressed lighter-than-air gas are used to reduce gradually the weight of the craft, of the loaded material and of the passengers and neutralize the earth attraction exerted on the craft and its load which can then be lifted in the air with the thrust of the vertical propellents.

10

14 The lighter-than-air craft of claim 1 wherein the cabin is placed behind the vertical pylons of the framework,

15

the cabin platform is set on the horizontal cross-overs and the diagonal cross sections held at the centre by a system of vertical beams supporting both the bottom level of the passenger compartment and the bottom level of the machine compartment of the framework,

20

the overall structure is carried by a suspension system on wheels for ground movement and /or by a system of inflatable and retractable balloon-bags for sea landings;

the windows fitted to the lateral balustrade are bulletproof; and,
the secured cabin openings, for embarkation and disembarkation of passengers,
are positioned at the rear of the cabin.

25

30

35

40

Abstract

The invention concerns a lighter-than-air craft for transporting by air equipment and passengers. more particularly, it concerns an aircraft whereof the frame (1) made of light metal and erected vertically, contains and protects the passenger compartment (4) of the invention, and all the components of the invention which, by a mass-reducing assembly (2-8-9-11-19), uses light gas power for neutralizing the earth's gravitational pull. Electric motors actuating propellers (6-7) with multiple blades and powered by a mini-electric power unit (5) enable to counter the force of mean winds, so to lift the neutralized mass and control the aircraft movements. The aircraft wide external surfaces (11-12) are used as wing system, a sailboat keel being replaced by a gyroscope (10) stabilizing effect and by the thrust of the lateral propellers (6). The invention which concerns a novel, safe, silent and economical form of air travel is designed for limited passenger and goods transport, for tourist sightseeing, exploring, observing and multimedia advertising display.

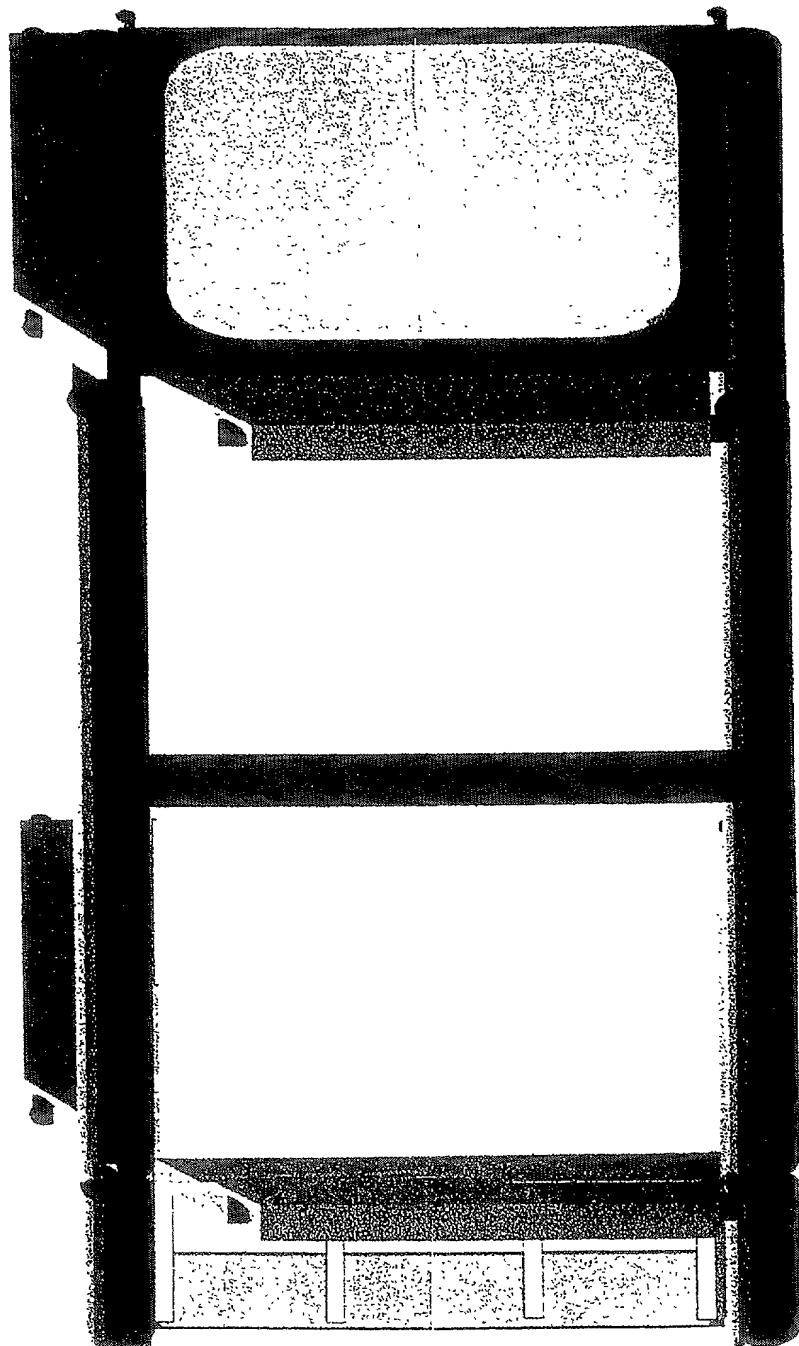


fig. 1

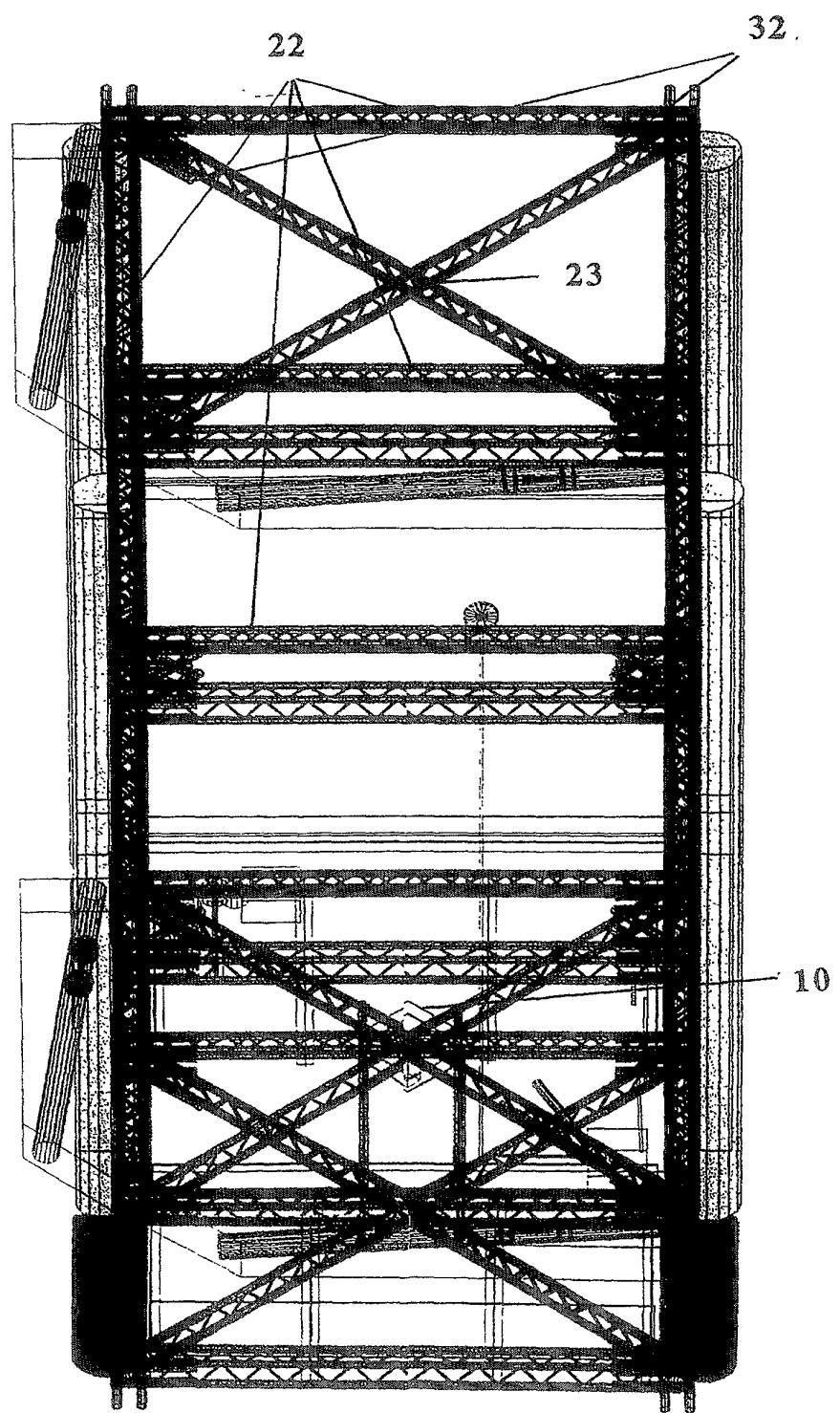


fig. 2

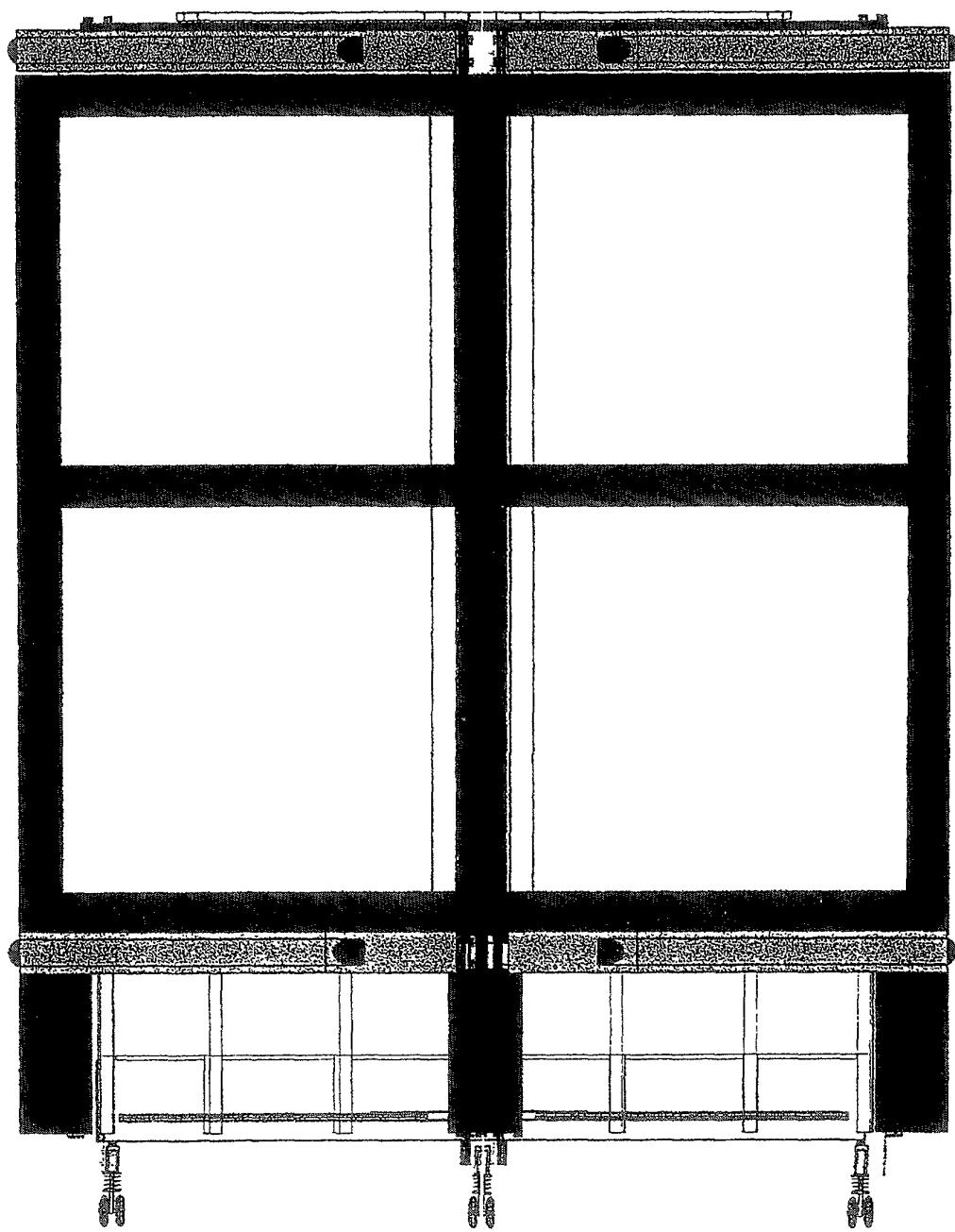


fig. 3

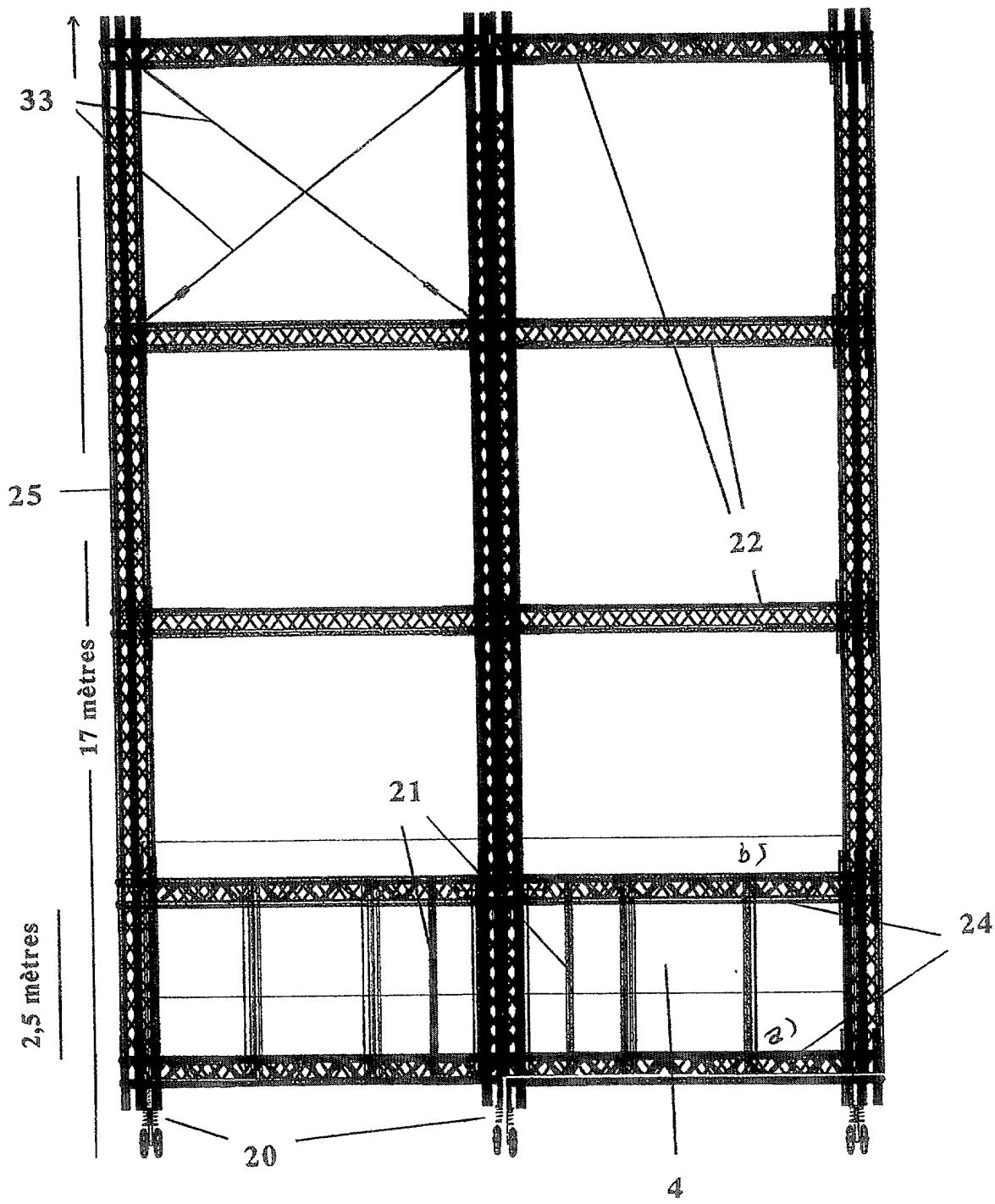


fig. 4

5/11

10 mètres

9 mètres

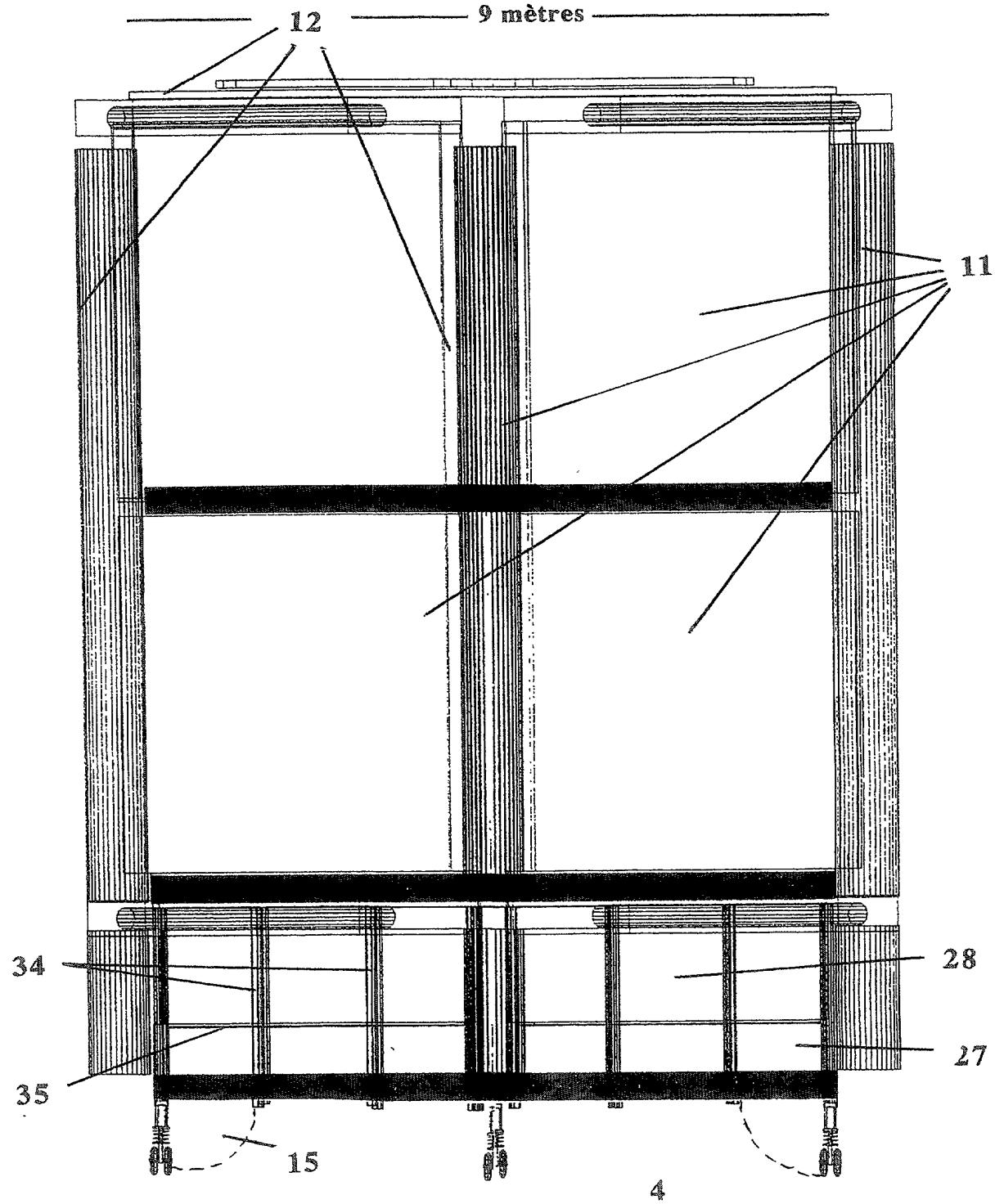


fig. 5

8 mètres

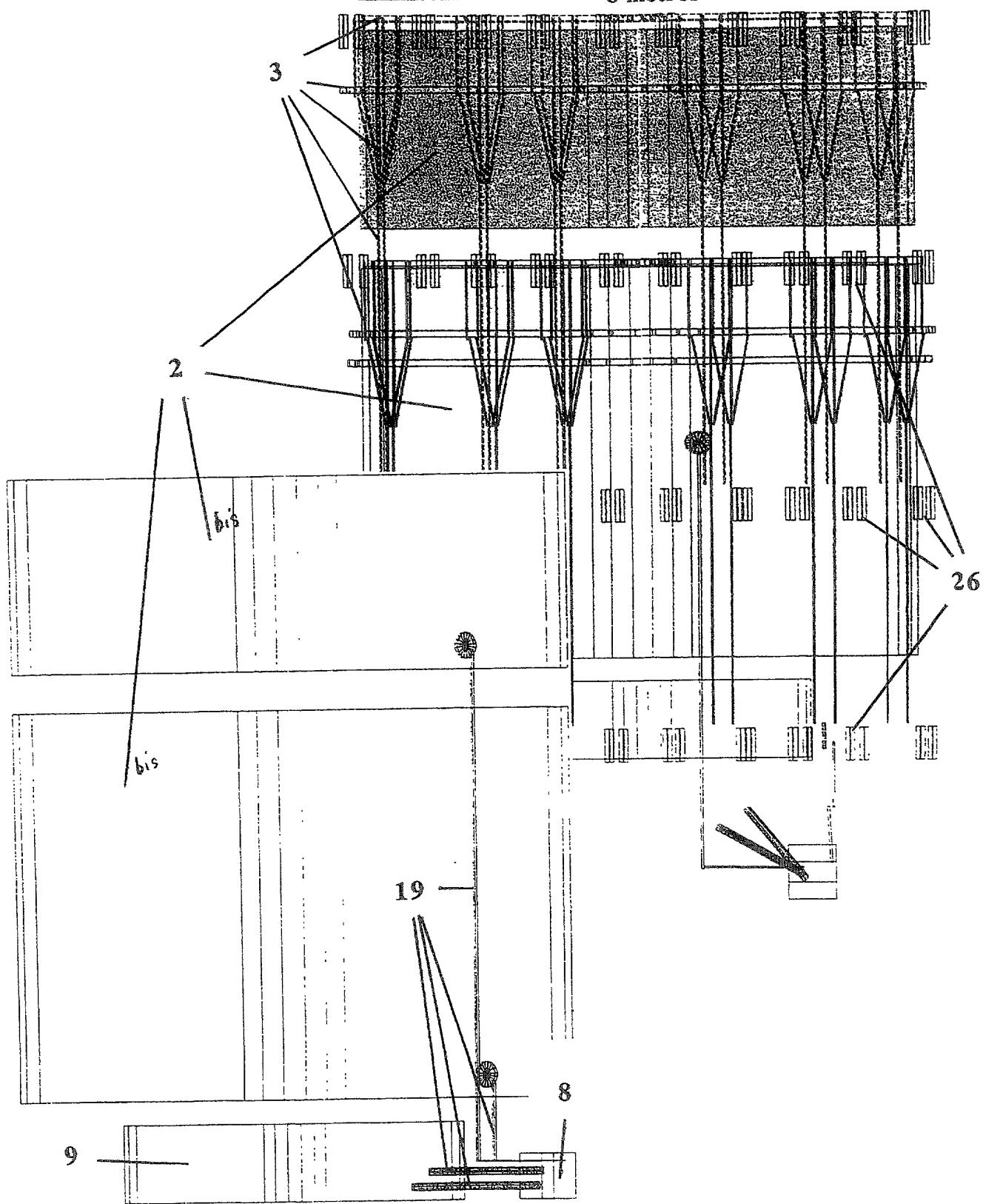


fig. 6

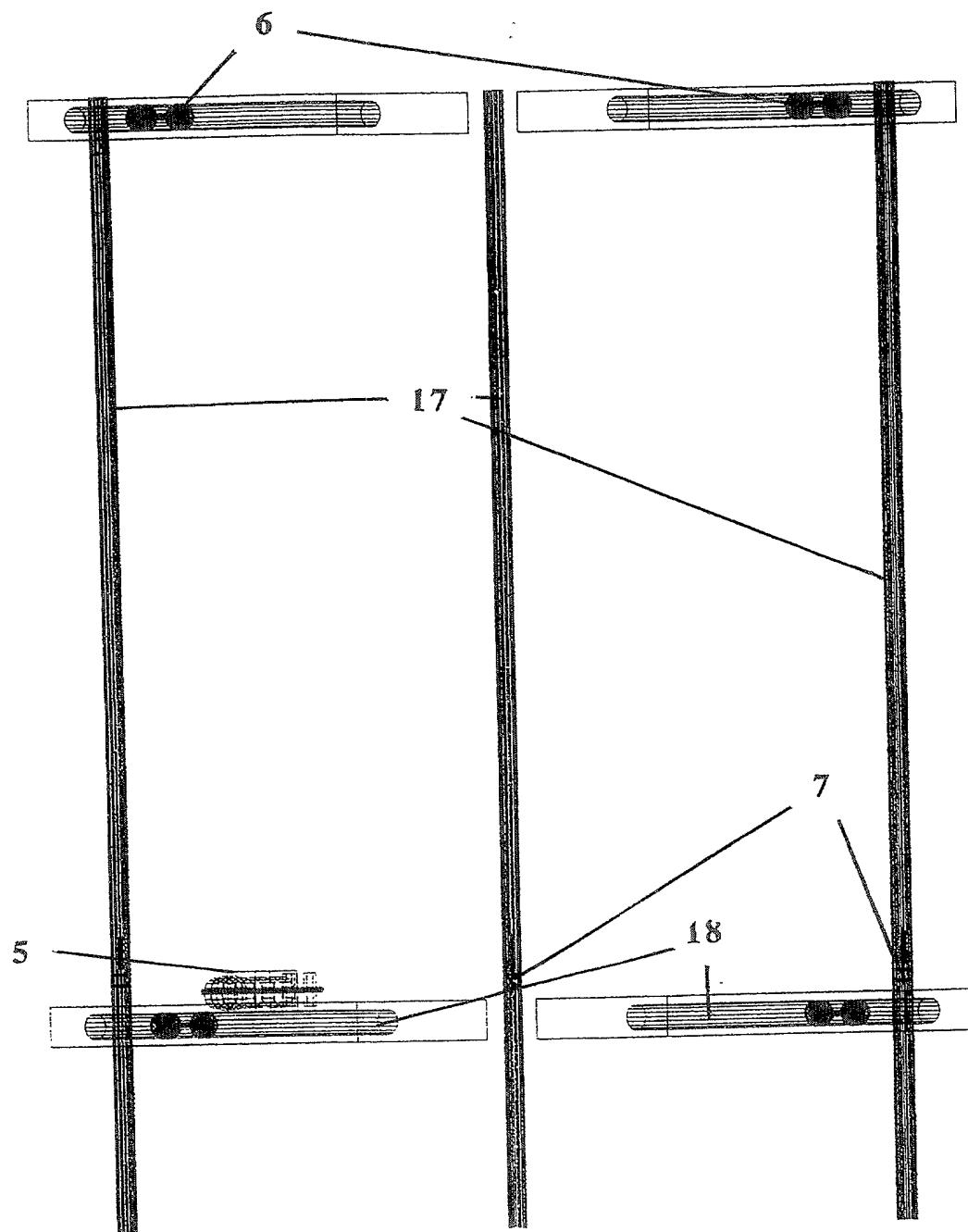


fig. 7

32

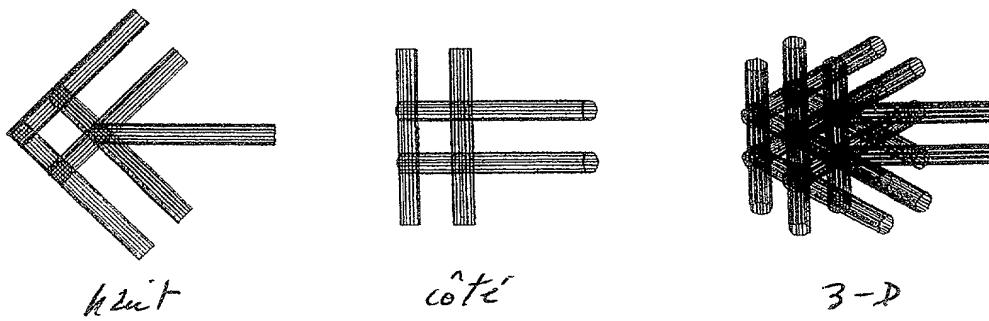


fig. 8

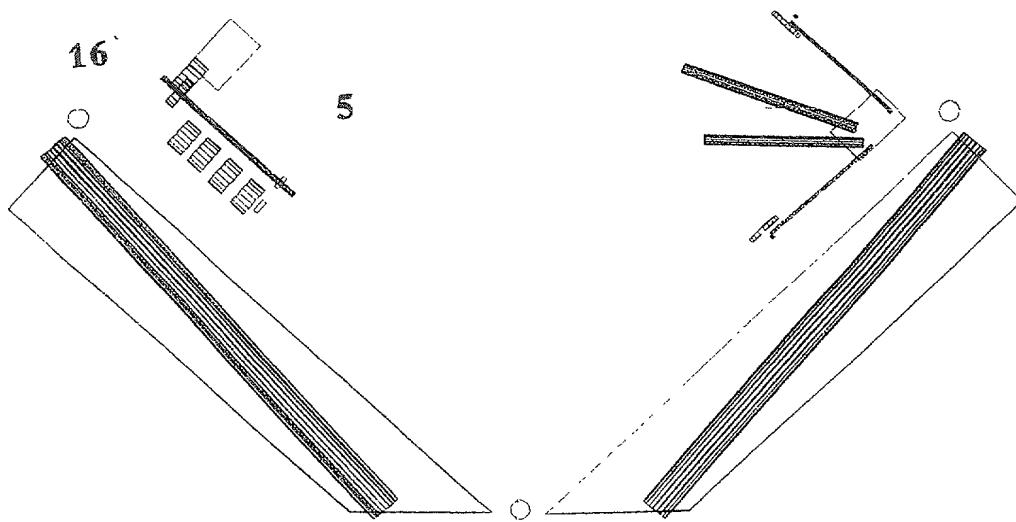
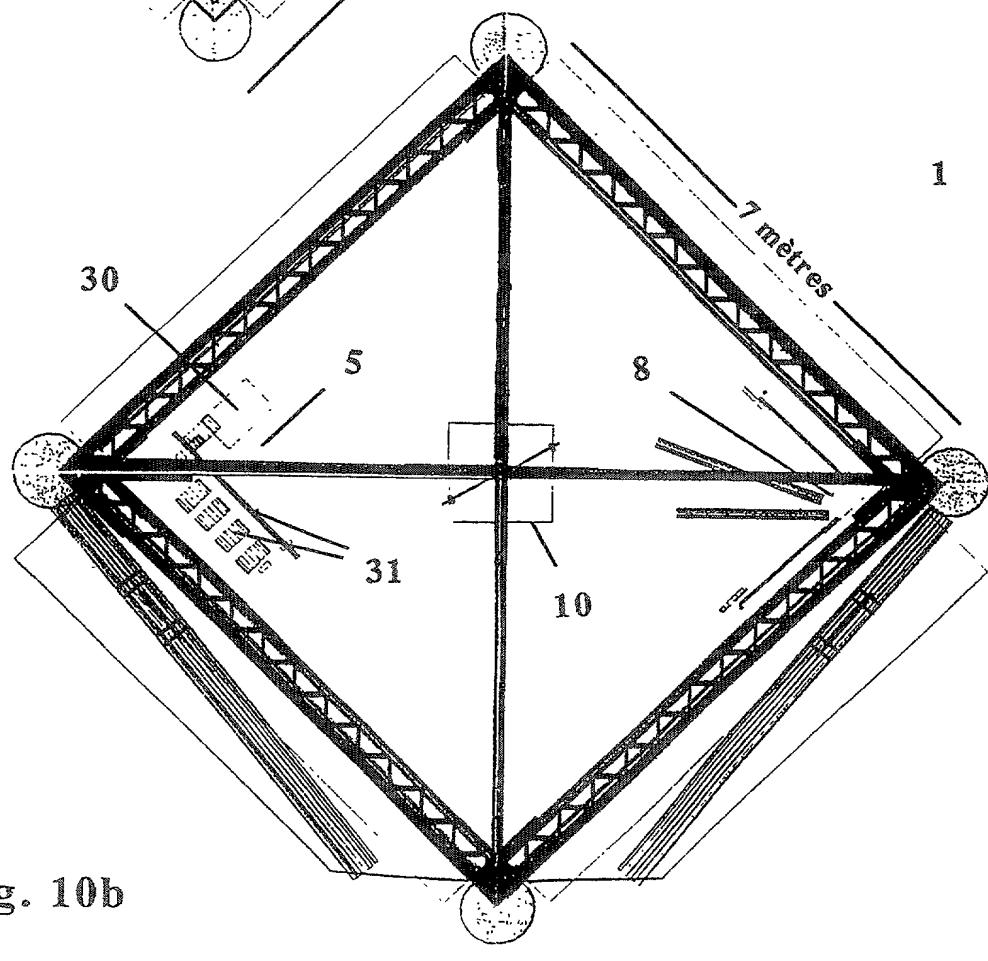
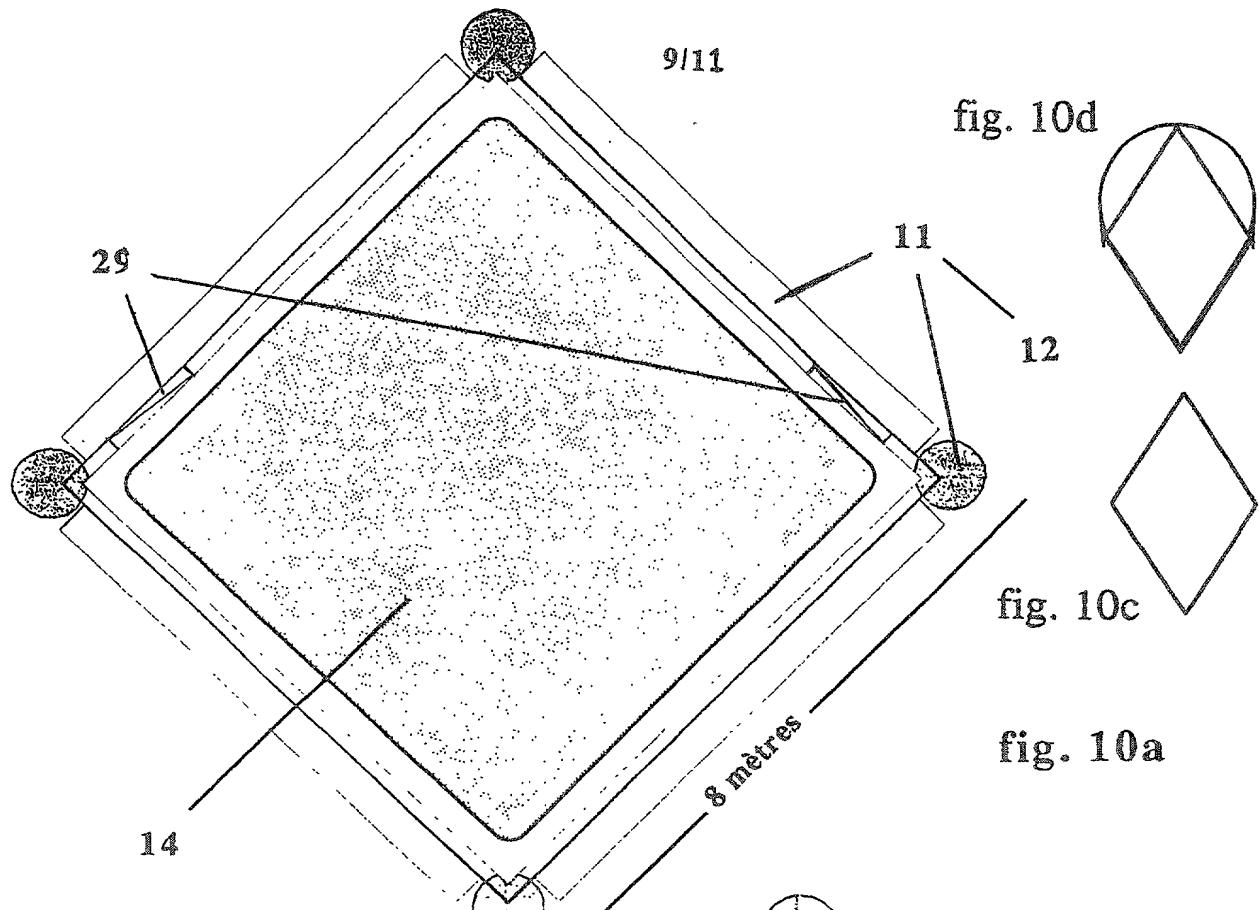


fig. 9



AV

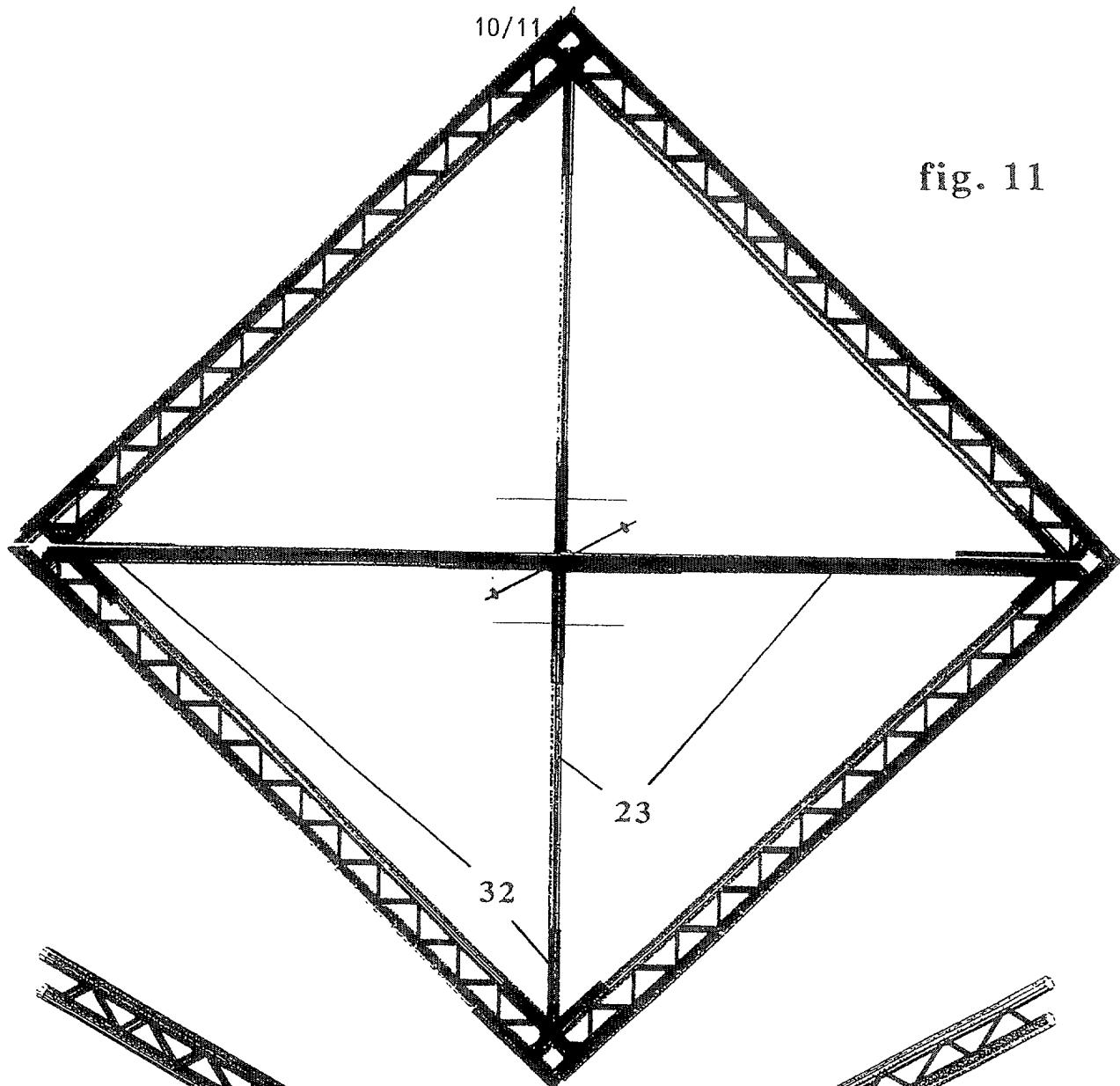


fig. 11

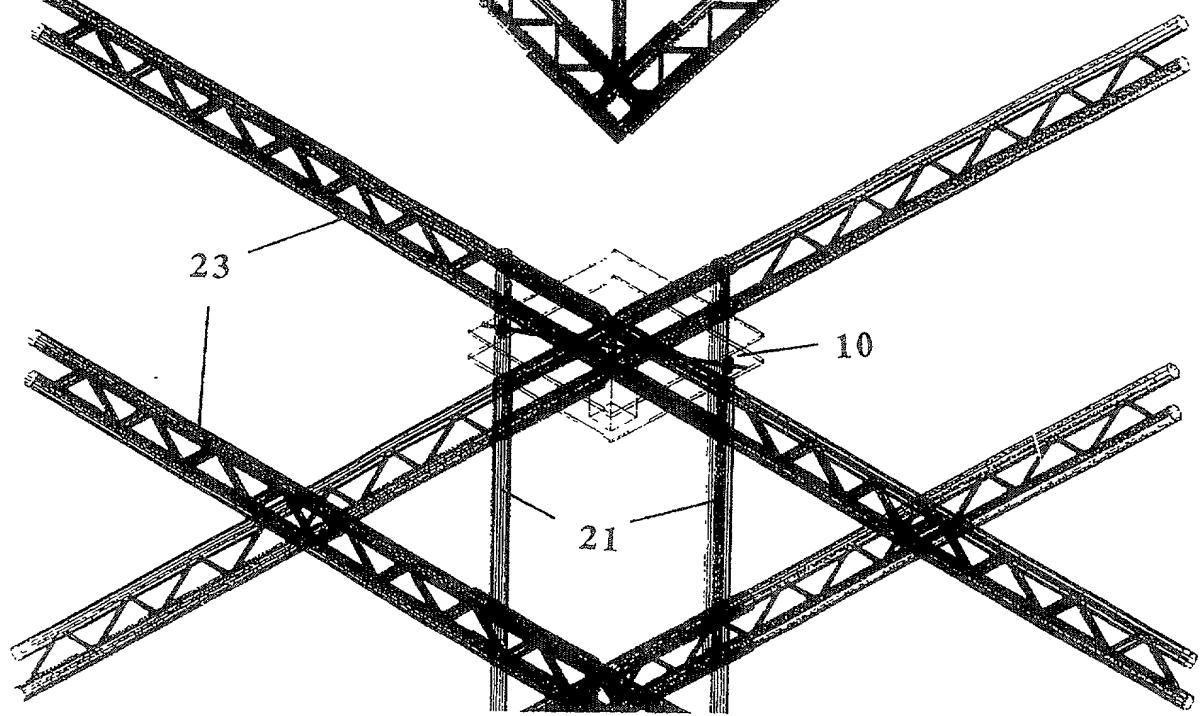


fig. 12

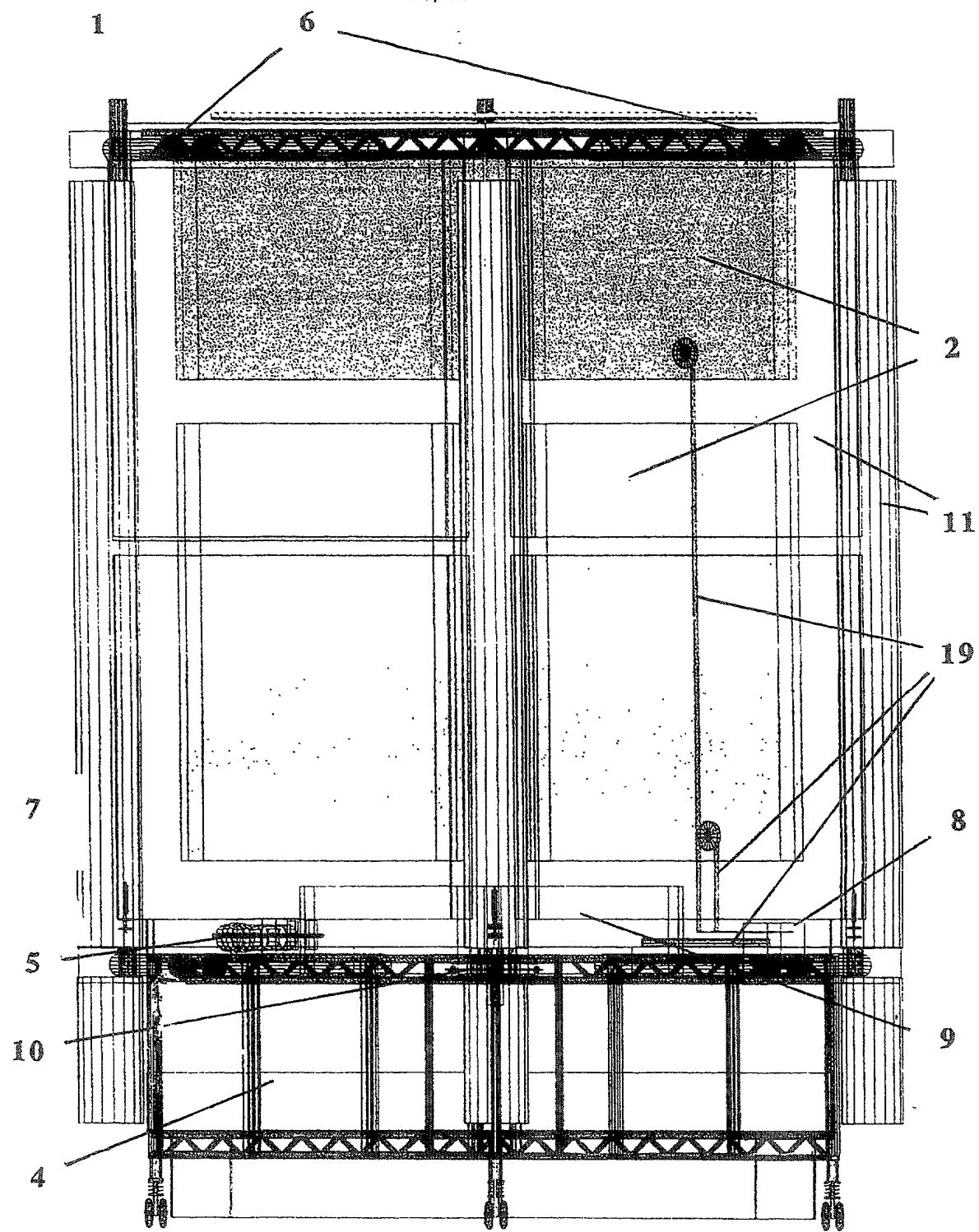


fig. 13

Please type a plus sign (+) inside this box →

PTO/SB/01 (12-97)

Approved for use through 9/30/00. GMB 0651-0032
Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

**DECLARATION FOR UTILITY OR
DESIGN
PATENT APPLICATION
(37 CFR 1.63)**

Declaration
Submitted
with Initial
Filing
OR Declaration
Submitted after Initial
Filing (surcharge
(37 CFR 1.16 (e))
required)

Attorney Docket Number	
First Named Inventor	BARBARIE
COMPLETE IF KNOWN	
Application Number	
Filing Date	
Group Art Unit	
Examiner Name	

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**AEROSTAT for TRANSPORTING EQUIP-
MENT and PASSENGERS**

the specification of which

(Title of the Invention)

is attached hereto
OR

was filed on (MM/DD/YYYY) as United States Application Number or PCT International

Application Number and was amended on (MM/DD/YYYY) (if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?
98/07922	FR	JUNE 23, 1998 (06/23/1998)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto

I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below

Application Number(s)	Filing Date (MM/DD/YYYY)	Additional provisional application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto
<input type="text"/>	<input type="text"/>	<input type="checkbox"/>

[Page 1 of 2]

Burden Hour Statement: This form is estimated to take 0.4 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → **+**

PTO/SB/01 (2-97)
Approved for use through 9-30-00 OMB 0651-0032

Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

DECLARATION — Utility or Design Patent Application

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application or PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)
PCT/FR99/01502	June 23, 1999 (06/23/1999)	

Additional U.S. or PCT international application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto

As a named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith. Customer Number Place Customer Number Bar Code
OR Registered practitioner(s) name/registration number listed below Label here

Name	Registration Number	Name	Registration Number

Additional registered practitioner(s) named on supplemental Registered Practitioner Information sheet PTO/SB/02C attached hereto

Direct all correspondence to: Customer Number OR Correspondence address below
or Bar Code Label

Name	BARBARIE YVES		
Address	29 bd de Montmorency		
Address			
City	PARIS	State	ZIP 75016
Country	FRANCE	Telephone 00133142882296	Fax same

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor:		<input type="checkbox"/> A petition has been filed for this unsigned inventor
Given Name (first and middle [if any])		Family Name or Surname
Inventor's Signature	YVES	BARBARIE (Feb) 17 février 2000 Date 02/17/00
Residence: City	PARIS	State Country FRANCE Citizenship CA
Post Office Address	29 bd de Montmorency	
Post Office Address		
City	PARIS	State ZIP 75016 Country FRANCE

Additional inventors are being named on the _____ supplemental Additional Inventor(s) sheet(s), PTO/SB/02A attached hereto